PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

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PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	19-11-2004
Applicant's or agent's file reference OP100815JUM	**FOR FURTHER ACTION** See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/FI2004/000435	2004-07-08	2003-07-09

International Patent Classification (IPC) or both national classification and IPC
A61B5/103, G01P15/18

Applicant
NEWTEST OY ET AL

1. This opinion contains indications relating to the following items:

- [X] Box No. I Basis of the opinion
- [ ] Box No. II Priority
- [ ] Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- [ ] Box No. IV Lack of unity of invention
- [X] Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- [ ] Box No. VI Certain documents cited
- [ ] Box No. VII Certain defects in the international application
- [ ] Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further opinions, see Form PCT/ISA/220.

9.5.2005/PJ/JAM

3. For further details, see notes to Form PCT/ISA/220.

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Form PCT/ISA/237 (cover sheet) (January 2004)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/FI2004/000435

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

   ☐ This opinion has been established on the basis of a translation from the original language into the following language, _____, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

   a. type of material

      ☐ a sequence listing

      ☐ table(s) related to the sequence listing

   b. format of material

      ☐ in written format

      ☐ in computer readable form

   c. time of filing/furnishing

      ☐ contained in the international application as filed.

      ☐ filed together with the international application in computer readable form.

      ☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/FI2004/000435

Box No. V **Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	1-24	YES
	Claims		NO
Inventive step (IS)	Claims		YES
	Claims	1-24	NO
Industrial applicability (IA)	Claims	1-24	YES
	Claims		NO

2. Citations and explanations:

The claimed invention relates to a method and a device for detecting types of physical exercise. The accelerations, caused by a person's exercise, are measured and characteristics describing the accelerations are calculated.

Documents cited in the International Search Report:

D1: US 6145389 A
D2: US 5989200 A
D3: JP 2003093566 A
D4: JP 11347021 A
D5: JP 2002263086 A

Document D5 represents the general state of the art.

Document D1 discloses a pedometer that accurately calculates the length of the strides taken by a user when walking or running. An accelerometer provides an acceleration signal indicative of the acceleration of the foot of the user. A processor memory stores predetermined data indicative of typical acceleration values of the human foot while walking or running. Data from the accelerometer is analyzed and certain acceleration characteristics are observed (column 6, line 33-column 7, line 11). The data is compared with the predetermined data and it can, from this comparison, be determined whether the user is walking or running (see claim 1).

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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of: Box V

Document D2 discloses a measurement device for the energy consumption caused by physical exercise. The type of exercise being performed is calculated from acceleration measurements. Average acceleration amplitudes are calculated and compared with stored values (column 7, line 39-column 10, line 53).

Document D3 discloses a device for discriminating movements and gestures of a body by using only acceleration data detected by means of a triaxial acceleration sensor (English abstract).

Document D4 discloses a consumed calorie-calculating device with an acceleration sensor and an atmospheric pressure sensor (English abstract). The atmospheric pressure sensor judges the up and down movements of the user.

Document D1 is regarded as being the closest prior art to the subject-matter of claims 1, 10 and 19. The difference between the invention according to these claims and D1 is that certain acceleration characteristics are calculated and compared with values from a table. In D1, measured data is compared with predetermined data, but there is no calculation of "special" acceleration characteristics. However, a person skilled in the art, having the invention disclosed in D1 as a starting point and searching for alternative ways to compare the measured data with the stored data, would find it obvious to use calculated acceleration characteristics. Therefore, the invention according to claims 1, 10 and 19 lacks an inventive step.

The invention according to claims 1, 10 and 19 is also considered to lack an inventive step in the light of document D2.

Further, the phrase "at least two different characteristics describing the accelerations measured are calculated" is

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unclear.

The difference between the invention according to claims 2 and 11 and D1 is that the accelerations are measured in three dimensions. A person skilled in the art, facing the problem with insufficient accuracy, realises that the acceleration can be measured in three dimensions. Further, the skilled person knows from e.g. document D3 that movements and gestures can be discriminated by means of a triaxial acceleration sensor.

Thus, a person skilled in the art, having the method and detector disclosed in D1 as a starting point, aiming to solve the identified problem, would with the knowledge from D3 measure the acceleration in three dimensions, and thus arrive at the invention according to claims 2 and 11.

Since both D1 and D3 relate to the same technical field and no unexpected effect is obtained, the combination of what is known from D1 and D3 is considered as obvious.

The difference between the invention according to claims 8,9,16-18 and 24 and D1 is that an altitude measurement is utilized in the exercise type detection. Due to this feature, the movement of the user in the up and downward directions can be monitored.

Consequently, with the background of D1, the problem is to develop an exercise detector that also registers the up and down movements of the user. However, document D4 discloses a calorie-counting device where an atmospheric pressure sensor is utilized. The sensor judges the up and down movements of the user by detecting the change of atmospheric pressure.

The skilled person would therefore regard it as a normal option to include this feature in the detector described in document D1 in order to solve the problem posed. Thus, the skilled person would arrive at the invention according to

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In case the space in any of the preceding boxes is not sufficient.
Continuation of: Box V

claims 8,9,16-18 and 24.

Since D1 and D4 both relate to the same technical field, and no unexpected effect is obtained, the combination of what is known from D1 and D4 is considered obvious for a person skilled in the art.

The invention according to claims 8,9,16-18 and 24 is thus not considered to involve an inventive step.

The subject matter of the remaining claims 4-7, 12-15 and 20-23, e.g. the calculated characteristics from the acceleration measurements and the use of membership functions, is only considered to constitute details obvious for a person skilled in the art. Therefore, the invention according to claims 4-7, 12-15 and 20-23 fails to involve an inventive step.